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LARVAL FOODPLANTS OF EULIINI (LEPIDOPTERA: TORTRICIDAE): FROM *ABIES* TO *VITIS*

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Abstract.—A list of larval foodplants for members of the tortricid tribe Euliini was compiled based on a literature search, label data of museum specimens, and the U.S. Department of Agriculture pest interception database. Of the 70 genera included in the tribe, larval foodplants are known for one or more species of only 11 genera. Several polyphagous genera (e.g., *Proeulia*, *Chileula*, *Bonagota*) include pests of cultivated plants, particularly in Chile, Argentina, and Uruguay. Foodplant records for most Euliini indicate polyphagous feeding habits at both the generic and species levels. Only a few genera deviate from this pattern: *Apolychrosis* and *Apotomops* are restricted to Coniferae, and *Anopina* and *Dorithia* appear to be leaf-litter feeders. Although most Tortricinae are leaf-rollers, many Euliini feed externally on the surface of fruit and sometimes bore into foodplant tissue.

Key Words.—Insecta, Lepidoptera, Tortricidae, Euliini, pest, foodplant, Neotropical, *Proeulia*, *Citrus*, *Vitis*, *Prunus*.

The tortricid tribe Euliini includes more than 340 described species distributed primarily in the New World tropics. Among its members are pests of citrus, grapes, kiwi, stone fruits, pines, and numerous other cultivated and ornamental plants. As is true of most neotropical tortricids, knowledge of the life histories of most Euliini is lacking.

We compiled records of larval foodplants of Euliini from three sources. 1) Six literature databases were searched, including AGRICOLA (1970–June 1997), CRIS/ICA (March 1997), Biological Abstracts (1980–June 1997), CAB Abstracts (1972–April 1997), Zoological Record (1978–June 1997), and AGRIS (1975–May 1997). 2) Specimens were examined for foodplant data at the National Museum of Natural History, Smithsonian Institution (USNM) and the Essig Museum of Entomology, University of California, Berkeley (UCB). 3) The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) pest interception database was queried. The latter includes records of taxa intercepted at U.S. ports and/or sent to taxonomists (e.g., ARS specialists or APHIS identifiers) for determination. These efforts represent a fairly comprehensive review of available information and resulted in records of larval foodplants for one or more species of 11 of the 70 genera included in the tribe.

The term "foodplant" refers to any plant that larvae of Euliini have been

discovered feeding upon in the field. The first mention of each common name of a plant species is accompanied by its scientific name, author, and family; thereafter, only the common name is given. Latin and common names of plants and familial assignments follow Brako, Rossman & Farr (1995). Table 1 lists all foodplants we found arranged in alphabetical order by genus and then by species, along with their associated euliine hervibore(s).

Anopina Obraztsov

Data from rearing studies (J. A. Powell, unpubl.) suggest that larvae of *Anopina triangulana* (Kearfott) feed on leaf litter. This conclusion is based on thorough collections of larval microlepidoptera in California in which larvae of *Anopina* are absent on living plant material at locations where adults are relatively common. Powell (1964) successfully reared this species from egghatch to maturity on willow (*Salix* sp.; Salicaceae), and more recently on dead leaves and synthetic medium (codling moth diet). The only record of a field collected larva is found on a genitalic slide of *A. ednana* (Kearfott) from Bar Harbor, Maine, bearing the data "specimens reared from white birch" (*Betula populifolia* Marsh.; Betulaceae) (USNM).

Apolychrosis Amsel

In his description of *A. schwardtfegeri*, Amsel (1962) listed *Pinus ayacahuite* Ehrenb. and *P. tenuifolia* Benth. (which is a synonym of *P. maximinoi* H. E. Moore) (Pinaceae) as larval foodplants of the species in Guatemala. Pogue (1986) cited *Pseudotsuga macrolepis* Flous and *Abies religiosa* Schl. & Cham. (Pinaceae) as foodplants of *A. ferruginus* Pogue in Mexico; *Pinus leiophylla* Schiede & Deppe and *Cupressus benthamii* (Klotzsch) Maters (Cupressaceae) as foodplants of *A. ambogonium* Pogue in Mexico; *Pinus rudis* Endl. and *P. chiapensis* (Martínez) Andresen as foodplants of *A. candidus* Pogue in Mexico; and *Abies religiosa*, *Pinus montezumae* Lamb., *P. ayacahuite*, *P. rudis*, *P. hartwegii* Lindl., and *Abies* sp. as foodplants of *A. synchisis* Pogue in Mexico. Larvae were reared primarily from second-year cones.

Apotomops Powell

Prentice (1965) indicates that *Apotomops wellingtoniana* (Kearfott) is a "solitary defoliator" in southern Canada (British Columbia to Nova Scotia). He lists silver fir (*Abies amabilis* Douglas ex Forbes; Pinaceae) (4 records), western hemlock (*Tsuga heterophylla* (Raph.) Sarg.; Pinaceae) (4 records), mountain hemlock (*Tsuga mertensiana* (Bong.) Carrière; Pinaceae) (1 record), and spruce (*Picea* sp.; Pinaceae) (1 record) as foodplants for this species.

Bonagota Razowski

Label data of the holotype of *Bonagota cranaodes* (Meyrick) from Argentina indicate that it was reared from *Mimosa* (Fabaceae) (Clarke 1963). Specimen label data (USNM) indicate that *B. cranaodes* is a general feeder in Uruguay, having been reared from acacia (*Acacia longifolia* (Andr.) Willd.; Fabaceae), alfalfa (*Medicago sativa* L.; Fabaceae), pear (*Pyrus communis* L.; Rosaceae), *Allophyllus edulis* (Camb.) Radl. (Sapindaceae), Japanese honeysuckle (*Lonicera japonica* Thunb.; Caprifoliaceae), pepper-tree (*Schinus longifolia* (Lindl.) Speg.; Anacar-

Table 1. Euliine Species by Host Plant. Plants arranged in alphabetic order (USNM = National Museum of Natural History, UCB = University of California, Berkeley).

Plant species	Moth species	Moth distribution	Source
Abies sp.	*Apolychrosis synchisis*	Mexico	Pogue 1986
Abies religiosa	*Apolychrosis ferruginus*	Mexico	Pogue 1986
	Apolychrosis synchisis	Mexico	Pogue 1986
Abies amabilis	*Apotomops wellingtoniana*	Canada/W. United States	Prentice 1965
Acacia longifolia	*Bonagota cranaodes*	Argentina/Chile	USNM specimen
Acer pseudoplatanus	*Proeulia chrysopteris*	Argentina/Chile	Gonzales 1990
Actinidia deliciosa	*Proeulia chrysopteris*	Argentina/Chile	Gonzales 1986, 1989, 1990; Pucat 1994
	Proeulia auraria	Argentina/Chile	Pucat 1994
Allophyllus edulis	*Bonagota cranaodes*	Argentina/Chile	USNM specimen
Alnus sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973, USNM specimen, Ferguson 1975
Alnus rubra	*Eulia ministrana*	Holarctic	Prentice 1965
Alvoradoa sp.	*Cuproxena minimana*	Central American/Florida	Brown & Powell 1991
Aristolochia chilensis	*Proeulia auraria*	Argentina/Chile	Obraztsov 1964
Austrocedrus chilensis	*Chileulia stalactitis*	Argentina/Chile	Pastrana 1997
Baccharis spicata	*Clarkeulia* nr. *virga*	Uruguay	USNM specimen
Betula sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973, Prentice 1965
Betula populifolia	*Anopina ednana*	SE Canada, NE United States	USNM specimen
Caesalpinia paraguariensis	*Proeulia chrysopteris*	Argentina/Chile	Pastrana 1997
Citrus sp.	*Deltinea costalimai*	Argentina	Pastrana 1961
Citrus limon	*Bonagota cranaodes/salubricola*	Argentina/Chile/Uruguay	Biezanko et al. 1974, Pastrana 1997
Citrus paradisi	*Bonagota cranaodes*	Argentina/Chile	USNM specimen
	Chileulia stalactitis	Argentina/Chile	Powell 1986
Citrus sinensis	*Clarkeulia bourquini*	Argentina/Brazil	Pastrana 1997
	Clarkeulia dimorpha	Argentina/Brazil	Pastrana 1997
	Chileulia stalactitis	Argentina/Chile	Powell 1986
	Proeulia auraria	Argentina/Chile	Gonzales 1990, Pucat 1994
	Proeulia chrysopteris	Argentina/Chile	Gonzales 1990, Pucat 1994
Corylus sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973
Cupressus benthami	*Apolychrosis ambogonium*	Mexico	Pogue 1986

Table 1. Continued.

Plant species	Moth species	Moth distribution	Source
Diospyros sp.	*Proeulia chrysopteris*	Chile	Pucat 1994
Epilobium sp.	*Eulia ministrana*	Holarctic	Benander 1929
Fagus sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973
Fraxinus sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973
Geoffroea decorticans	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
Gladiolus communis	*Clarkeulia excerptana*	Argentina/Brazil	Pastrana 1997
Ipomoea mutabils	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
Ligustrum lucidum	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
Ligustrum sinense	*Clarkeulia bourquini*	Argentina/Brazil	Pastrana 1997
Linum usitatissimum	*Clarkeulia excerptana*	Argentina/Brazil	Pastrana 1997
Lonicera japonica	*Bonagota cranaodes*	Argentina/Chile	USNM specimen
	Bonagota cranaodes/salubricola	Argentina/Chile	Pastrana 1997
Malus domestica	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
	Clarkeulia bourquini	Argentina/Brazil	Pastrana 1997
	Proeulia chrysopteris	Argentina/Chile	Gonzales 1990, Pucat 1994
	Proeulia auraria	Argentina/Chile	Gonzales 1990
Medicago sativa	*Bonagota cranaodes*	Argentina/Chile	USNM specimen
	Clarkeulia excerptana	Argentina/Brazil	Pastrana 1997
	Clarkeulia bourquini	Argentina/Brazil	Pastrana 1997
Mentha rotundafolia	*Clarkeulia bourquini*	Argentina/Brazil	UCB specimen
Mimosa sp.	*Bonagota cranaodes*	Argentina/Chile	Clarke 1963
Myrciaria jaboticaba	*Clarkeulia dimorpha*	Argentina/Brazil	Pastrana 1997
Myrtaceae shrubs	*Proeulia auraria*	Chile	Pucat 1994
Phytolacca dioica	*Clarkeulia dimorpha*	Argentina/Brazil	Pastrana 1997
Picea sp.	*Apotomops wellingtoniana*	Canada/W. United States	Prentice 1965
Pinus spp.	*Proeulia chrysopteris*	Argentina	Pastrana 1997
Pinus ayacahuite	*Apolychrosis schwardtfegeri*	Guatemala	Amsel 1962
	Apolychrosis synchisis	Mexico	Pogue 1986
Pinus chiapensis	*Apolychrosis candidus*	Mexico	Pogue 1986
Pinus hartwegii	*Apolychrosis synchisis*	Mexico	Pogue 1986
Pinus leiophylla	*Apolychrosis ambogonium*	Mexico	Pogue 1986
Pinus montezumae	*Apolychrosis synchisis*	Mexico	Pogue 1986

Table 1. Continued.

Plant species	Moth species	Moth distribution	Source
Pinus radiata	*Proeulia chrysopteris*	Chile	Parra & Cerda 1992, Pucat 1994
Pinus rudis	*Apolychrosis candidus*	Mexico	Pogue 1986
	Apolychrosis synchisis	Mexico	Pogue 1986
Pinus tenuifolia	*Apolychrosis schwardtfegeri*	Guatemala	Amsel 1962
Platanus orientalis	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
	Proeulia chrysopteris	Argentina/Chile	Gonzales 1990, Pucat 1994
Polygonum sp.	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
Prosopis sp.	*Chileulia stalactitis*	Argentina/Chile	Powell 1986
Prunus sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973
Prunus armeniaca	*Proeulia chrysopteris*	Argentina/Chile	Obrazstov 1964, Pucat 1994
	Proeulia auraria	Chile	Pucat 1994
	Chileulia stalactitis	Argentina/Chile	Powell 1986
Prunum avium	*Proeulia auraria*	Chile	Pucat 1994
	Eulia ministrana	Holarctic	Ferguson 1975
Prunus domestica	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
	Chileulia stalactitis	Argentina/Chile	Powell 1986
	Clarkeulia bourquini	Argentina/Brazil	Pastrana 1997
	Proeulia auraria	Argentina/Chile	Gonzales 1990, Pucat 1994
	Proeulia chrysopteris	Argentina/Chile	Gonzales 1990, Pucat 1994
Prunus persica	*Proeulia chrysopteris*	Argentina/Chile	Gonzales 1990, Pucat 1994
Pseudotsuga macrolepis	*Apolychrosis ferruginus*	Mexico	Pogue 1986
Pyrus communis	*Proeulia chrysopteris*	Argentina/Chile	Gonzales 1990, Pucat 1994
	Proeulia auraria	Argentina/Chile	Gonzales 1990, Pucat 1994
	Bonagota cranaodes	Argentina/Chile	USNM specimen
Quercus sp.	*Dorithia semicirculana*	Rocky Mountains, USA	Brown & Powell 1991
	Dorithia trigonana	Arizona to Durango, Mexico	Brown & Powell 1991
	Dorithia occidentana	Durango, Mexico	Brown & Powell 1991
	Eulia ministrana	Holarctic	Bradley, Tremewan & Smith 1973
Rapanea lorentziana	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
	Clarkeulia dimorpha	Argentina/Brazil	Pastrana 1997
Rhamnus sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973

Table 1. Continued.

Plant species	Moth species	Moth distribution	Source
Rosa sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973
Rubus sp.	*Proeulia* sp.	Chile	Pucat 1994, USDA/APHIS database
Rubus chamaemorus	*Eulia ministrana*	Holarctic	Benander 1929
Rubus idaeus	*Proeulia* sp.	Chile	USDA/APHIS database
Rubus ulmifolius	*Proeulia* sp.	Chile	USDA/APHIS database
Salix sp.	*Anopina triangulana*	California, USA	Powell 1964
	Eulia ministrana	Holarctic	Prentice 1965
Salix humboltiana	*Clarkeulia* sp.	Uruguay	USNM specimen
Salix vitellina	*Clarkeulia* sp.	Uruguay	USNM specimen
Schinus longifolia	*Bonagota cranaodes*	Argentina/Chile	USNM specimen
Schinus terebinthinfolius	*Clarkeulia virga*	Argentina/Brazil	USNM specimen
	Cuproxena auga	Brazil	Brown & Powell 1991
Senecio bonariensis	*Deltinea costalima*	Argentina	Pastrana 1997
Simmondsia chinensis	*Proeulia chrysopteris*	Chile	Quiroga et al. 1989, Pucat 1994
Solanum bonariense	*Deltinea costalima*	Arentina	Pastrana 1961
Sorbus sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973
Taxodium distichum	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
Tilia sp.	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973
Trifolium repens	*Clarkeulia bourquini*	Argentina/Brazil	USNM specimen
	Clarkeulia nr. *virga*	Uruguay	USNM specimen
Tsuga heterophylla	*Apotomops wellingtoniana*	Canada/W. United States	Prentice 1965
Tsuga mertensiana	*Apotomops wellingtoniana*	Canada/W. United States	Prentice 1965
Vaccinium myrtillus	*Eulia ministrana*	Holarctic	Bradley, Tremewan & Smith 1973
Verbenaceae	*Clarkeulia bourquini*	Argentina	Pastrana 1997
Viburnum sp.	*Eulia ministrana*	Holarctic	Ferguson 1975
Vitis spp.	*Proeulia chrysopteris*	Chile	Pucat 1994
Vitis vinifera	*Bonagota cranaodes/salubricola*	Argentina/Chile	Pastrana 1997
	Chileulia stalactitis	Argentina/Chile	Powell 1986
	Proeulia auraria	Argentina/Chile	Campos et al. 1981; Gonzales 1983, 1990; Pucat 1994
	Proeulia triquetra	Argentina/Chile	Gonzales 1983, 1990; Pucat 1994

diaceae), and grapefruit (*Citrus paradisi* Macfad.; Rutaceae). Biezanko et al. (1974) record *B. salubricola* from lemon (*Citrus limon* (L.) Burm.; Rutaceae) in Uruguay.

Pastrana (1997) lists the following as foodplants of *Bonagota cranaodes/salubricola* (Meyrick) in Argentina: Japanese honeysuckle, morning-glory (*Ipomoea mutabilis* Ker; Convolvulaceae), *Geoffroea decorticans* (Gill. ex Hook. & Arn.) Burkart (Fabaceae), *Rapanea lorentziana* Mez. (Myrsinaceae), privet (*Ligustrum lucidum* Aiton; Oleaceae), Oriental plane-tree (*Platanus orientalis* L.; Platanaceae), knotweed (*Polygonum* sp.; Polygonaceae), apple (*Malus domestica* Borkh.; Rosaceae), plum (*Prunus domestica* L.; Rosaceae), lemon, bald cypress (*Taxodium distichum* (L.) Rich.; Taxodiaceae), and grapes (*Vitis vinifera* L.; Vitaceae). Although considered distinct species by Razowski (1986), *Bonagota salubricola* and *B. cranaodes* were treated as synonyms by Pastrana (1997), with no explanation for this decision. Hence, it is uncertain to which species his foodplant records refer. It is possible that the two names represent a single species—*B. salubricola* (Meyrick) was described from Buenos Aires and the very similar *B. cranaodes* (Meyrick) from Tigre, both in Argentina. However, according to Razowski (1990), the male genitalia on the slide of the type of *B. salubricola* are incorrectly associated, belonging to a Eucosmini and not to the holotype, so comparisons of male genitalia with the type are meaningless.

Chileulia Powell

Powell (1986) indicated that larvae of *Chileulia stalactitis* (Meyrick) feed on various fruit crops in Chile, including grapes, grapefruit, orange (*Citrus sinensis* (L.) Osbeck; Rutaceae), plum leaves, apricot leaves (*Prunus armeniaca* Marsh.; Rosaceae), and fruit of mesquite (*Prosopis tamarungo* Phil.; Fabaceae). Pastrana (1997) added *Austrocedrus chilensis* (D. Don) Pic. Serm. & Bizzarri (Cupressaceae) to the list of foodplants in Argentina.

Clarkeulia Razowski

Clarkeulia bourquini (Clarke) has been reared from white clover (*Trifolium repens* L.; Fabaceae) (USNM) and *Mentha rotundafolia* (L.) Huds. (Lamiaceae) (UCB) in Uruguay, and from alfalfa, Chinese privet (*Ligustrum sinense* Lour.; Oleaceae), apple, plum, orange, and various Verbenaceae in Argentina (Pastrana 1997).

According to Pastrana (1997), *Clarkeulia dimorpha* (Clarke) is a pest of ornamentals and citrus in Argentina, feeding on *Phytolacca dioica* L. (Phytolaccaceae), *Rapanea lorentziana*, *Myrciaria* (Myrtaceae), and orange. Many of the same species are reported as foodplants in Brazil (d'Araújo et al. 1968).

Clarkeulia excerptana (Walker) is recorded from *Gladiolus* (Iridaceae), alfalfa, and flax (*Linum usitatissimum* L.; Linaceae) (Pastrana 1997). *Clarkeulia virga* (Clarke) has been reared from flowers of Brazilian pepper-tree (*Schinus terebinthifolius* Raddi; Anacardiaceae) (USNM). An apparently undescribed species (nr. *virga*) from Uruguay (USNM) has been found on *Baccharis spicata* (Lam.) Baillon (Asteraceae) and white clover; and an undetermined species from Uruguay (USNM) was reared on willows (*Salix vitellina* Willd. and *S. humboltiana* Willd.; Salicaceae).

Cuproxena Powell & Brown

Two species of *Cuproxena* have been reared from field-collected larvae: *C. auga* (Razowski and Becker) from Brazilian pepper-tree in Minas Gerais, Brazil, and *C. minimana* Brown from *Alvoradoa* sp. (Simaroubaceae) in southern Florida (Brown & Powell 1991).

Deltinea Pastrana

Deltinea costalimai Pastrana is reported to bore in the stems or shoots of nightshade (*Solanum bonariense* L.; Solanaceae) and to feed on the leaves and flowers of *Citrus* sp. (Rutaceae) in Argentina (Pastrana 1961). Pastrana (1997) also cites *Senecio bonariensis* Hook. & Arn. (Asteraceae) as a foodplant in Argentina.

Dorithia Powell

As with *Anopina*, circumstantial evidence suggests that *Dorithia* larvae may feed on leaf litter (Brown & Powell 1991). Despite extensive searches of potential host foliage, no larvae have been discovered in the field. Larvae of three species (i.e., *D. semicirculana* (Fernald), *D. trigonana* Brown & Obraztsov, & *D. occidentana* Brown) have been reared successfully in the laboratory from egghatch to adults on fresh leaves of *Quercus* spp. (Fagaceae); the overall distribution of *Dorithia* corresponds to the distribution of *Quercus* from the Rocky Mountains south to Costa Rica. Although the distribution of *Dorithia semicirculana* closely parallels that of *Quercus gambellii* Nutt., and larvae were successfully reared in the laboratory on fresh leaves of *Quercus lobata* Née, which is in the same section as *Q. gambellii* (i.e., the white oaks), larvae were never discovered on *Q. gambellii* in the field.

Eulia Hübner

Larvae of the holarctic *E. ministrana* (L.) are polyphagous leaf rollers, recorded from numerous plant families. Bradley, Tremewan & Smith (1973) list *Fraxinus* (Oleaceae), *Rhamnus* (Rhamnaceae), *Sorbus*, *Prunus* (both Rosaceae), *Betula*, *Alnus*, *Corylus* (all Betulaceae), and *Vaccinium myrtillus* L. (Ericaceae) as hosts in Great Britain, and *Rosa* (Rosaceae), *Fagus*, *Quercus* (both Fagaceae), and *Tilia* (Tiliaceae) from the European continent. Benander (1929) reported *Epilobium* (Onagraceae) and *Rubus chamaemorus* L. (Rosaceae) also from Europe.

In Canada, Prentice (1965) cites rearings of *Eulia ministrana* on red alder (*Alnus rubra* Bong.; Betulaceae) (7 records), birch (*Betula* sp.; Betulaceae) (1 record), and willow (*Salix* sp.; Salicaceae) (1 record); and Ferguson (1975) cites cherry (*Prunus avium* L.) (1 record), alder (*Alnus* sp.) (2 records), and *Viburnum* sp. (Caprifoliaceae) (1 record).

Proeulia Clarke

The genus *Proeulia* includes 22 described species, nearly all of which are confined to Chile (Razowski 1995). Several are pests of agricultural plants; consequently, there is considerable economic literature on the genus. Larvae of *Proeulia* are polyphagous leaf rollers, also feeding on the surface of fruit (Gonzáles 1981a, 1981b, 1990); the larvae of some species spend the winter protected under loose bark (Gonzáles 1972).

Pear, orange, and grape are the main foodplants of *P. auraria* (Clarke) (Pucat 1994). The life history of this species on grape was detailed by Campos et al. (1981) and on pear by Alvarez & Gonzáles (1982). Other recorded foodplants include plum, apricot, cherry, apple, *Prunus*, *Platanus* (Platanaceae), kiwi (*Actinidia deliciosa* (A. Chev.) C. S. Liang & A. R. Ferguson; Actinidiaceae), and shrubs of Myrtaceae and Aristolochiaceae (Pucat 1994, Zhang 1994), including *Aristolochia chilensis* Bridges ex Lindl. (Obraztsov 1964).

The primary foodplants of *P. chrysopteris* (Butler) in Chile are apricot, apple, plum, peach (*Prunus persica* (L.) Batsch; Rosaceae), nectarine (*Prunus persica* var. *nucipersica* (Suckow) C. K. Schneid.; Rosaceae), pear, and kiwi. Damage and management of *P. chrysopteris* on kiwi are discussed in detail by Gonzáles (1986, 1989) and Gonzáles & Curkovic (1994). Secondary foodplants of *P. chrysopteris* include *Acer pseudoplatanus* L. (Aceraceae), Oriental plane-tree, orange, *Diospyros* sp. (Ebenaceae), and *Vitis* spp. (Pucat 1994). Potentially severe damage to jojoba (*Simmondsia chinensis* (Link) C. K. Schneid.; Simmondsiaceae) is described by Quiroga, Arretz & Araya (1989); and Parra & Cerda (1992) report damage to Monterey pine (*Pinus radiata* D. Don; Pinaceae) by *P. chrysopteris*. Pucat (1994) cites raspberry (*Rubus* sp.; Rosaceae) as a "rare" host; the USDA/APHIS database includes three records of interceptions of *Proeulia* on *Rubus*, and these records may refer to *P. chysopteris*. Pastrana (1997) records many of the same hosts for this species in Argentina, with one additional foodplant: paradise-flower (*Caesalpina paraguariensis* (D. Parodi) Burkart; Fabaceae).

The only recorded foodplant for *Proeulia triquetra* Obraztsov is grape (Gonzáles 1983, 1990, Pucat 1994, Pastrana 1997), and this month is of secondary economic importance as a grape pest (Gonzáles 1990).

The genus *Proeulia* has been treated in a variety of unpublished USDA/APHIS circulars, keys, and bulletins, and this body of literature is reponsible for at least three mistakes that require rectification. 1) In early accounts of pests from Chile, most species of *Proeulia* were treated as *Eulia*. 2) A record of *Proeulia* from China is almost certainly based on a misdetermination. 3) A reference to *Proeulia chilense* is an error—there is no such species. It is possible that this mistake resulted from Obraztsov's (1964) review of the genus in which he identified *A.* [*Aristolochia*] *chilense* as a larval foodplant of *Proeulia* in Chile.

Summary and Conclusions

Host plant records indicate polyphagous feeding habits for most Euliini at both the generic and species levels. Only a few genera deviate from this pattern: *Apolychrosis* and *Apotomops* are restricted to Pinaceae, and *Anopina* and *Dorithia* appear to be leaf-litter feeders. In contrast to the larvae of most Tortricinae, which are leaf-rollers on living plant material (MacKay 1962, Powell 1980), many Euliini feed externally on the surface of fruit and sometimes bore into host plant tissue; species of two genera are believed to feed in leaf-litter.

Larval foodplants are known for one or more representatives of 11 genera in the tribe; several genera include pests of cultivated and ornamental plants. Documented hosts encompass 36 vascular plant families: Aceraceae (1 euliine genus), Actinidiaceae (1), Anacardiaceae (3), Aristolochiaceae (1), Asteraceae (2), Betulaceae (3), Caprifoliaceae (2), Convolvulaceae (1), Cupressaceae (2), Ebenaceae (1), Ericaceae (1), Fabaceae (4), Fagaceae (2), Iridaceae (1), Lamiaceae (1), Lin-

aceae (1), Myrsinaceae (2), Myrtaceae (2), Oleaceae (3), Onagraceae (1), Phytolaccaceae (1), Pinaceae (3), Platanaceae (2), Polygonaceae (1), Rhamnaceae (1), Rosaceae (5), Rutaceae (5), Salicaceae (3), Sapindaceae (1), Simaroubaceae (1), Simmondsiaceae (1), Solanaceae (1), Taxodiaceae (1) Tiliaceae (1), Verbenaceae (1), and Vitaceae (3). Reflecting a sampling bias, Rosaceae and Rutaceae each support five genera of euliine herbivores, more than any other plant family. These two plant families include a large percentage of the commercially cultivated, fruit-bearing trees in the New World tropics (e.g., *Prunus* and *Citrus*). With the exception of the use of conifers by *Apolychrosis* and *Apotomops*, and rarely by *Proeulia* and *Bonagota*, and the infrequent use of Iridaceae by *Clarkeulia*, most euliine genera appear to be restricted to dicotylendous plants; few other trends are evident.

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